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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,462	03/19/2001	Satoshi Kiyomatsu	L7016.01109	8976

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EXAMINER

CRAVER, CHARLES R

ART UNIT

PAPER NUMBER

2682

DATE MAILED: 05/21/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

5

Office Action Summary

Application No.

09/810,462

Applicant(s)

KIYOMATSU ET AL.

Examiner

Charles R Craver

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24,28,29,32,33 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,15-17,20,21 and 23 is/are allowed.
- 6) ☒ Claim(s) 1,3-14,18,19,22-24,28,29,32,33 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 9, 10, 14, 18, 19, 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tosaki, US Pat 5,712,649.

Claim 1: Tosaki discloses a virtual image display with a real image display and a virtual display (col 3 lines 50-65) using a light guide (col 3 line 66-col 4 line 15) formed in an isosceles triangular column 13 with a first incident and emanating surface and a first and second reflecting surfaces 13b such that light from the real display is incident through the first surface, reflects off of the first and second reflection surfaces, and emanates from the light guide means (col 4 lines 16-67) into magnifying means 11.

Claims 3 and 4: Tosaki discloses that the optical distance may be varied, as well as the tilt (col 4 lines 50-67).

Claims 9 and 14: Tosaki discloses a virtual image display with a real image display and a virtual display (col 3 lines 50-65) using a light guide (col 3 line 66-col 4 line 15) formed in an isosceles triangular column 13 with a first incident and emanating surface and a first and second reflecting surfaces 13b such that light from the real display is incident through the first surface, reflects off of the first and second reflection

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surfaces, and emanates from the light guide means (col 4 lines 16-67) into magnifying means 11, wherein the operating distance is variable and may be less than 100mm (see FIG 3), and the optical path from the light guide is larger than three times the thickness of the light guide, as measured at the middle. **Claims 10, 18 and 19:** Tosaki discloses that the optical distance may be varied, as well as the tilt (col 4 lines 50-67). **Claim 22:** the reflective surface is read as a total reflective surface. **Claim 24:** the magnifying means is a non-contact convex lens member and has positive refractive power (FIG 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki.

While disclosing applicant's invention of claim 1 above, Tosaki fails to disclose any shielding around the real display. However, given that Tosaki discloses a CRT display, which emanates heat, it would have been an obvious modification to one of ordinary skill in the art at the time of the invention to use a light or heat shield near the real display so as to keep stray light to a minimum, as well as heat, given that the display of Tosaki is close to the face of the user (FIG 3).

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki.

Please see the rejection of claims 5 and 6 above.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki.

Please see the rejection of claims 5 and 6 above.

Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki.

Please see the rejection of claims 5 and 6 above.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki as applied to claim 1 above, and further in view of Novis et al, US Pat 5,867,795.

While disclosing applicant's invention of claim 1 above, Tosaki fails to disclose a transducer, antenna, speaker, microphone or controller.

Novis discloses the utility of using a virtual display in a conventional cellular phone (col 2 lines 29-53), inherently including a transducer, speaker/microphone, antenna and controller, as well as a display means (col 3 line 23-col 4 line 21).

Therefore, it would have been obvious to one of ordinary skill in the art to use such a display in a cellular device in order to maintain portability.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki as applied to claim 9 above, and further in view of Novis et al.

Please see the rejection of claim 7 above.

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Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki as applied to claim 14 above, and further in view of Novis et al.

Please see the rejection of claims 7 and 8 above.

Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tosaki as applied to claim 9 above, and further in view of Novis et al.

Please see the rejection of claim 7 above.

Allowable Subject Matter

Claims 2, 15-17, 20, 21 and 23 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 2 and 15 teach towards a virtual image display means for creating a virtual image from a real image display and magnifying it using a light guide formed from a parallelogram-cross-section quadrate columnar shape with a first and fourth reflective internal surface for reflecting light into the light guide, a second internal surface serving as a light incident surface and a reflecting surface and a third internal reflecting/emanating surface such that light from the real display is incident through the second internal reflecting surface, is reflected at the first, second, third and fourth reflective surfaces, and then emanates from the third surface and into the magnifying means.

Claim 16 teaches towards a virtual image display apparatus comprising a real image display part for displaying an image, an image magnifying means for optically

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magnifying the image formed in the real image forming means so as to form a virtual image, and a light guide means for guiding light from the real image display part to the image magnifying means, said light guide means comprising a first prism, a second prism and an image magnifying means interposed between the first prism and the second prism, said first prism being formed in a triangular columnar shape having a right triangle section and having a long side used as a first internal surface, a short side used as an emanating surface, and a slope side used as an emanating surface and a second internal reflecting surface, said second prism being formed in a triangular columnar shape having a long side used as a fourth internal reflecting surface, a short side used as an incident surface and a slope side used as an incident surface and a third internal reflecting surface, emanating light from the real image display part is incident upon the incident surface of the first prism, is reflected at the first internal surface and then at the second internal reflecting surface, and emanates from the emanating surface, then is incident upon the second optical prism by way of the image magnifying means, then is reflected at the third reflecting surface and the fourth reflecting surface, and emanates from the emanating surface and enters into the image magnifying means.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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DeLuca, Robinson, Kuriyama, Yamazaki, Smyth and Spooner disclose virtual displays.

Togino discusses a prizm optical system.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314 for both formal and informal/draft communications, labeled as such.

Hand delivered responses should be brought to Crystal Park II, 2121

Crystal Drive, Arlington VA, sixth floor (receptionist).

Any inquiry concerning this or earlier communications from the examiner should be directed to examiner Charles Craver at (703) 305-3965.

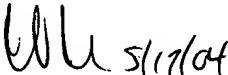
If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached at (703) 308-6739.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at (703) 305-4700.

CC

C.Craver

May 17, 2004


CHARLES CRAVER
PATENT EXAMINER